### Prescribing guideline for the prevention of sepsis in asplenic and hyposplenic patients

<table>
<thead>
<tr>
<th>Sites where local guideline applies</th>
<th>John Hunter Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target audience:</td>
<td>Medical officers and other clinical staff, who provide care to hyposplenic and asplenic patients.</td>
</tr>
</tbody>
</table>

This local guideline applies to:

1. Adults: Yes
2. Children up to 16 years: No
3. Neonates – less than 29 days: No

### National Standards:

3

### Keywords

Spleen, splenectomy, vaccination, vaccine, pneumoccus, meningococcus, haemophilus influenza, drug, medication, pharmacy, JHH, RNC

### Replaces Existing Local Guideline

No

### Registration Number and name and of Superseded Documents

### Relevant or related Documents, Australian Standards, Guidelines etc:

- NSW Health Policy Directive PD2014_036 Clinical Procedure Safety
- NSW Health Policy Directive PD2005_406 Consent to Medical Treatment
- NSW Health Policy Directive PD2007_036 Infection Control Policy
- NSW Health Policy Directive 2013_043 Medication Handling in NSW Public Health Facilities


### Prerequisites (if required)

Nil

### Local Guideline Note

This document reflects what is currently regarded as safe and appropriate practice. The guideline section does not replace the need for the application of clinical judgment in respect to each individual patient. If staff believe that the guideline should not apply in a particular clinical situation they must seek advice from their unit manager/delegate and document the variance in the patient’s health care record.

### Date initial authorisation:

November 2013

### This Local Guideline contains advice on therapeutics

Yes- Approval gained from JHH Quality Use of Medicines Committee on 14/11/13

### Authorised by:

JHH Quality Use of Medicines Committee

### Contact Person:

Clinical Pharmacist in General Surgery

### Contact Details:

Jennifer Nolan – 49213635

### Date Reviewed:

February 2015

### Review due date:

February 2017

### Responsible for review:

Clinical Pharmacist in General Surgery

### Version:

Version 2.0 26 February 2015
GNAH_0446: DPG for prevention of sepsis in asplenic/hyposplenic patients

RISK STATEMENT
This local guideline has been developed to reduce the risks of opportunistic infection in patients who are asplenic or hyposplenic.

Any unplanned event resulting in, or with the potential for, injury, damage or other loss to patients/staff/visitors as a result of this procedure must be reported through the Incident Information Management System and managed in accordance with the Ministry of Health Policy Directive: Incident management PD2014_004.

OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>To ensure patients receive appropriate and timely vaccinations and sepsis prevention as well as education regarding the same.</th>
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<tbody>
<tr>
<td>2</td>
<td>Increased patient education and engagement in their long term health status.</td>
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ABBREVIATIONS & GLOSSARY

<table>
<thead>
<tr>
<th>Abbreviation/Word</th>
<th>Definition</th>
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<tbody>
<tr>
<td>13vPCV</td>
<td>13-valent pneumococcal conjugate vaccine (Prevenar 13®)</td>
</tr>
<tr>
<td>23vPPV</td>
<td>23-valent pneumococcal polysaccharide vaccine (Pneumovax 23®)</td>
</tr>
<tr>
<td>4vMenCV</td>
<td>Meningococcal ACW_{135}Y conjugate vaccines that confer immunity against <em>N. meningitidis</em> serogroup A, C, W_{135} and Y (Menactra® or Menvo®)</td>
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GUIDELINE
This guideline does not replace the need for the application of clinical judgment in respect to each individual patient.

<table>
<thead>
<tr>
<th>Indication for use</th>
<th>To prevent fulminant sepsis in the asplenic and hyposplenic patient</th>
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Clinical condition (Inclusion criteria)

- Patients over eighteen years of age
- Patients who have undergone surgical removal of the spleen.
- Patients who have functional asplenia or hyposplenia in whom preventative recommendations are indicated; this may include patients with:
  - Chronic graft versus host disease
  - Coeliac disease
  - Haemoglobinopathies such as sickle cell anaemia, or thalassaemia major
  - Systemic lupus erythematosus
  - Inflammatory bowel disease

The presence of Howell-Jolly bodies on a blood film is accepted as the usual diagnostic marker of asplenia or hyposplenia; however it should be noted this is a marker of the spleen’s ability to remove damaged cells rather than of immunological function.

Contra-indications
Anaphylaxis to previous vaccinations- contact immunology.

Precautions
Patients who have undergone subtotal splenectomy or significant splenic trauma with preservation of the spleen are of uncertain risk of fulminant sepsis and treatment should be guided by the expert clinician. Patients receiving chemotherapy or radiotherapy.
Background

Asplenic and hyposplenic patients are at significant lifetime risk of a fulminant sepsis syndrome, most commonly caused by encapsulated bacteria including *Streptococcus pneumoniae*1,3. This is because the spleen is the main site of production of IgM antibodies required for opsonising encapsulated pathogens3.

Vaccination

All patients should be vaccinated against *Pneumococcus, Meningococcus, Haemophilus influenzae*, and seasonal influenza; see below. See also [https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf](https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf)

Commence the following vaccine recommendations at:

- **Either:** At least 14 days prior to planned splenectomy
- **Or:** On the 14th post-operative day after emergency splenectomy (provided patient has recovered from surgery)
  
  NB- May be given earlier if there is a risk of loss of patient follow-up (vaccine response is better at day 14 compared to day 7, but no different at day 281)
- **Or:** At diagnosis of functional or anatomical hyposplenia or asplenia1-3

If no pneumococcal or meningococcal vaccinations received previously during adulthood: N.B. – check if the patient has already received the current influenza seasonal vaccine

All the above listed vaccinations are 0.5 mL volume administered intramuscularly6.
If previous pneumococcal vaccinations received during adulthood:
- 13vPCV should not be given within one year of a 23vPPV dose\(^2,3\).
- 23vPPV should not be given within eight weeks of a 13cPCV dose, or within five years of a previous 23vPPV dose\(^2,3\).
- A single dose of 13vPCV is recommended for adults at high risk of invasive pneumococcal disease; including those with functional or anatomical asplenia. This should be given before 23vPPV\(^2,3,5\).
- Up to three doses of 23vPPV are recommended in adulthood, depending on age, Indigenous status, and the causative condition. This is not inclusive of doses received under twelve years of age\(^2\).

See [https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf](https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf)
- If previous doses of 23vPPV have been received during adulthood; the decision to re-vaccinate should be discussed with immunology.

If previous meningococcal vaccinations received during adulthood:
- Do not give 4vMenCV within 3 years of 4vMenPV\(^6\).
- See [https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf](https://spleen.org.au/VSR/Files/RECOMMENDATIONS_Spleen_Registry.pdf) or contact immunology

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<th>Antibiotic prophylaxis</th>
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<td>Therapeutic Guidelines (Antibiotic) recommends continuous daily antibiotic prophylaxis in adults for:</td>
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<tr>
<td>• At least 3 years following splenectomy</td>
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<tr>
<td>• Asplenic patients with severe underlying immunosuppression</td>
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<tr>
<td>• At least 6 months after an episode of severe sepsis in asplenic patients(^7).</td>
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<tr>
<td>Where antibiotic prophylaxis is indicated, for adults use:</td>
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<tr>
<td>• Amoxicillin 250mg orally daily OR</td>
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<tr>
<td>• Phenoxymethylpenicillin 250 mg orally 12-hourly(^7)</td>
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For patients hypersensitive to penicillin use
- Roxithromycin 150 mg orally daily\(^7\)

NB- The only randomised controlled studies of penicillin prophylaxis occurred in children with sickle cell anaemia, and other studies showing efficacy appear to have occurred in an era of higher pneumococcal susceptibility to penicillin; in 1997 in Australia approximately 25 percent of pneumococcal strains were non-susceptible to penicillin, and resistance rates are believed to be dramatically rising\(^1,3,6\).

UpToDate does not recommend routine prophylaxis in asplenic adults, except in survivors of pneumococcal postsplenectomy sepsis and highly immunocompromised patients\(^3\).

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<th>Emergency antibiotics</th>
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| ALL patients must be supplied with emergency antibiotics (irrespective of prophylaxis) with instructions to take in the event of any sudden onset of unexplained fever, malaise, or chills AND to seek medical attention immediately\(^1,3,6,3\):
- Amoxicillin 3 g in one dose immediately, followed by 1g every eight hours\(^1\)

Cases of penicillin allergy should be discussed with the infectious diseases consultant on call.
### Education

All patients and their families must be educated about the risk of severe sepsis and strategies to minimise this risk.
- Written information should be given (see appendix 1)
- Patients should be advised to carry/wear a medical alert
- GP must be advised (consider faxing a copy of this guideline)

### Travelling advice

**Malaria**

Asplenic and hyposplenic patients are at increased risk of severe malaria, and if travelling to endemic areas should be warned of this risk and take it into consideration when planning itineraries. Optimal precautions to prevent infection should be ensured, including antimalarial prophylaxis, mosquito repellents, and other barrier precautions. Advice from an infectious diseases physician or expert travel advisor is recommended.

**Babesiosis**

The spleen is involved in the removal of *Babesia* species, and fatal infections have occurred in asplenic patients. This is an unusual infection transmitted by ticks and travellers to at risk regions should be warned.

**Animal Bites**

Asplenic and hyposplenic patients are at increased risk of severe sepsis following bites from dogs and other animals, commonly caused by *Capnocytophaga canimorsus*. Patients should be warned of this risk and supplied with adequate antibiotics for animal bites.

### Administration instructions

Storage of vaccines policy must be followed:


Administration of vaccines should follow Chapter 2.2 of the Australian Immunisation Handbook (10th Edition).

When giving different vaccines on the same day, use separate injection sites and different syringes and needles.

### Groups consulted in development of this guideline

- Patrick Cashman – HNEH Immunisation Co-ordinator
- John Ferguson – Infectious Diseases Physician, JHH
- Denis Spelman – Microbiology and Infectious Diseases, Alfred Hospital

### APPENDICES

- Appendix 1: Patient information
- Appendix 2: Patient record
REFERENCES


Patient Information: 
Prevention of sepsis in asplenic/hyposplenic patients

The spleen is an organ that removes damaged red blood cells from the bloodstream. It also helps to protect the body against infection by removing bacteria from the blood. If the spleen is surgically removed or does not work correctly, a minor infection can potentially develop into a life-threatening infection known as sepsis.

**Symptoms of sepsis:**
- Fever greater than 38°C or 100.4°F
- Uncontrollable chills and/or shivering
- Headache
- Drowsiness, confusion, and/or disorientation
- Nausea, vomiting, and/or diarrhoea
- Severe abdominal pain
- Pinpoint purplish red spots on the skin (petechiae) or larger, bluish bruises
- Low blood pressure, light-headedness or fainting (syncope)
- Rapid heart rate

Vaccines are used to protect you against some types of bacteria; it is important you keep these up to date using the record sheet provided.

Antibiotics are also important to reduce the risk of sepsis, there are two options:
- Daily preventative antibiotics
- Emergency antibiotics to keep on hand in case you develop signs of sepsis

**Inform healthcare providers**

- Inform all doctors, dentists, and other members of the healthcare team that your spleen has been removed or does not function properly, especially when seeing new healthcare providers in an urgent care setting or emergency ward.
- Carry a patient identification card, a Medic Alert® bracelet or necklace, or other medical identification indicating that the spleen has been removed or does not work properly.

**Always** check with your doctor before travelling overseas – some diseases that are rare in Australia may be a problem for you overseas.
Appendix 2

Patient Record:
Vaccinations and antibiotics for asplenic and hyposplenic patients
Present this to your doctor or nurse for completion and keep for your records

Name:
MRN:
Date of splenectomy OR Cause of hyposplenia or asplenia:

VACCINATIONS

*Doctors/nurses please enter dates of administration*

**Pneumococcal vaccine**
13vPCV (Prevenar 13®) dose: ..............................................
23vPPV (Pneumovax 23®) dose 1: ...........................................
23vPPV (Pneumovax 23®) dose 2: ...........................................
23vPPV (Pneumovax 23®) dose 3: ...........................................

**Meningococcal vaccine**

<table>
<thead>
<tr>
<th>Dose 1</th>
<th>Dose 2</th>
<th>Five yearly boosters:</th>
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**Haemophilus influenzae vaccine**

Hib (Hiberix®) dose:

**Influenza vaccine – Please record year of seasonal vaccine and date given**

<table>
<thead>
<tr>
<th>Year:</th>
<th>Date given:</th>
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**PREVENTATIVE ANTIBIOTICS**

Daily antibiotic prophylaxis prescribed? Yes / No
If yes: You need to take daily ______________________________________________________

**EMERGENCY ANTIBIOTICS**

If you develop fever, chills, or any sign of sudden infection as listed on the patient information sheet, you need to take: ______________________________________________________

AND seek medical attention immediately. Check the expiry of these antibiotics regularly to ensure you have in-date antibiotics on hand at all times.